



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/064,998

09/06/2002

Arun Kumar Jaura

201-1225

1850

7590
Artz & Artz, P.C.
28333 Telegraph Road
Suite 250
Southfield, MI 48034

08/19/2009

EXAMINER

COOLMAN, VAUGHN

ART UNIT

PAPER NUMBER

3618

MAIL DATE

DELIVERY MODE

08/19/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Application/Control Number: 10/064,998

Page 1

Art Unit: 3618



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/064,998

Filing Date: September 06, 2002

Appellant(s): JAURA ET AL.

Jerome R. Drouillard
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 04/17/2009 appealing from the Office action mailed 05/01/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct. Although applicant has failed to include a separate heading for each ground of rejection, each ground of rejection is clearly discussed by applicant by way of individual paragraphs that are addressed below in the Response to Arguments section.

(7) Claims Appendix

The listing of claims in the appellant's claims appendix is correct.

(8) Evidence Relied Upon

Art Unit: 3618

6,670,788	PRABHU ET AL	12-2003
4,284,913	BARNHARDT	8-1981
6,066,060	HARPER	5-2000
5,443,130	TANAKA ET AL	8-1995

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 3, 4, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie et al (U.S. Patent No. 5,217,085).

[claim 1] Barrie discloses (see FIGS 1-3) a cooling system for a vehicle powertrain having a motor (28) and a transmission (30) comprising:

said motor having a stator housing;

a cooling loop (shown in FIG 2) in heat conductive contact with said motor stator housing and with said transmission;

said cooling loop comprising a heat exchanger (62) and conduits providing a fluid flow connection between said motor stator housing said transmission, and said heat exchanger, said cooling loop further comprising a mechanical transmission pump (46) and an auxiliary pump (52); and said cooling system further comprising a controller (110), for receiving and processing input (104) from at least one vehicle sensor (102). Barrie does not disclose the controller commanding said auxiliary pump to operate when the processed input of the at least one vehicle sensor exceeds a pre-selected threshold. However, Barrie does control the valve (106) in response to the input from the vehicle sensor exceeding a pre-selected threshold (Column 5, lines 45-60). Barrie also teaches, in the embodiment shown in FIG 1, a controller (22 – not labeled in

FIG) controlling a pump (10, 18) based on vehicle sensor input (24). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system shown by Barrie with the controller as also taught by Barrie, since such a modification would provide the advantage of providing higher flow rates of the coolant in order to more efficiently cool the motor and transmission as well as being able to edit the threshold value easily.

[claim 3] Although not explicitly stated by Barrie, the controller disclosed is obviously a vehicle system controller as it is controlling a system, the cooling fluid pumping system, of a vehicle. If applicant is attempting to claim a *systems* controller, it also would have been obvious to one of ordinary skill in the art at the time the invention was made for the controller of the pump to be integrated into the main controller or CPU of the vehicle since such a modification would provide the advantage of centralizing the control modules and allowing faster and improved communication between the various vehicle systems' control programs.

[claim 4] Barrie further shows the cooling system including bypass conduits and bypass valves having actuators (shown in FIGS 2 and 3) that would be independently controllable by the controller to operate when the processed input from at least one vehicle sensor exceeds a pre-selected threshold (Column 5, lines 35-60). Barrie does not teach the auxiliary pump being reversible, however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to install a reversible pump in the location of auxiliary pump (52). The motivation to do so is that by observing the valve and conduit configuration of Barrie, it is obvious that one could provide increased coolant flow to the motor (above the maximum flow rate of the main pump 46) by pumping the auxiliary pump in an opposite direction than disclosed by Barrie.

[claim 6] Barrie further teaches that an old and well known configuration for a powertrain containing a motor and transmission arrangement is in a series configuration (Column 1, lines 15-17).

[claim 9] Barrie discloses all of the elements of the claimed invention as described above except for the exact range of temperature that control the operating parameters of his cooling system. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the range of maximum temperature for the transmission and motor to be no greater than 250 degrees Fahrenheit and 630 [350] degrees Fahrenheit, respectively, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie in view of Prabhu et al (U.S. Patent No. 6,670,788)

[claim 5] Barrie teaches all aspects of the claimed invention as discussed above except for the cooling system's motor being an integrated starter-generator. Prabhu et al teaches a hybrid vehicle including an ISG or Integrated Starter Generator (11; Column 1, lines 17-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system shown by Barrie, with the ISG as taught by Prabhu, since the ISG is a known replacement for the motor/generator and performs additional functions such as automatic start-stop and regenerative braking for enhancing vehicle versatility and functionality.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie in view of Barnhardt (U.S. Patent No. 4,284,913).

[**claim 7**] Barrie discloses all of the elements of the claimed invention as described above except for it is not readily apparent whether the auxiliary pump is located at the interior of the transmission. Barnhardt teaches a cooling system for a vehicle powertrain having a motor and a transmission (shown in FIG 2) wherein an auxiliary pump (16) is located on the interior of the transmission. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system shown by Barrie with the pump location as taught by Barnhardt, since such a modification would provide the advantage of protecting the pump from damage from external debris.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie in view of Harper (U.S. Patent No. 6,066,060).

[**claim 8**] Barrie discloses all of the elements of the claimed invention as described above except for it is not readily apparent whether the auxiliary pump is located to the exterior of the transmission. Harper teaches a cooling system for a vehicle including an auxiliary pump (50) located external to the transmission (shown in FIGS 1 and 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system shown by Barrie with the external pump as taught by Harper, since such a modification, according to Harper, would provide the advantage of not reducing the operating efficiency of the transmission, in contrast to an internal pump (Column 8, lines 6-11).

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrie in view of Tanaka et al (U.S. Patent No. 5,443,130).

[claims 10 and 11] Barrie discloses all of the elements of the claimed invention as described above except for the structural relationship of the stator and transmission housings. Tanaka discloses a transmission and motor configuration wherein the stator housing is overlapped by a transmission housing as well as being adjacent to the transmission housing (shown in FIG 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system shown by Barrie with the housing configuration as taught by Tanaka, since such a modification would provide the advantage of absorbing thrust from the transmission gears in an efficient and safe manner (Column 8, lines 50-68; column 9, lines 1-15).

(10) Response to Argument

In response to Appellant's arguments, it appears that Appellant is not arguing against the rejection set forth in the final rejection. Appellant states at the bottom of page 4 that Barrie does not disclose a "cooling loop in heat conductive contact with the motor stator housing and with the transmission". Appellant continuously argues against elements shown in FIG 1 of Barrie, when it has been clearly stated by Examiner in the Final rejection that the rejection is based on the cooling loop of FIG 2 in combination with elements taught in FIGS 1 and 3.

As described in the final rejection of 05/01/2007 and repeated above, Barrie indeed discloses such a cooling loop in FIG 2. Appellant points to Barrie's description of a two circuits, a cooling circuit and a lubrication circuit, as evidence against the rejection. Barrie does show two circuits in FIG 2, but the circuits are in heat conductive contact with each other and employ

Art Unit: 3618

the same working fluid drawn from the same fluid reservoir (FIG 2 – item 44). Barrie discloses all of the elements of claim 1 in FIGS 2 and 3. FIG 3 is simply an alternate form of valve control wherein valve assembly 84 in FIG 2 is replaced by valve assembly 106 from FIG 3. This is described in detail by Barrie in column 5, lines 29+. Examiner looked to FIG 1 of Barrie simply for the teaching of a controller (22) which fulfills the claimed limitation of “commanding [an] auxiliary pump to operate when the processed input of at least one vehicle sensor exceeds a pre-selected threshold”. The operation of Barrie’s pump controller (22), which meets the claim limitation, is described at column 2, lines 65-68 and column 3, lines 1-2. Adding the controller provides the benefit of more precise control of the cooling system when using the sensor output. The more precise control would especially be an advantage when traveling between various hot and cold climates.

Regarding appellant’s arguments on page 5, there appears to be an error in the third line of the first complete paragraph – “contact with motor stator housing (30) and with traction motor (28)”. Appellant also continuously refers to “heat exchanger (40)” when Examiner clearly stated that the heat exchanger being relied upon for the rejection is item 62 from FIG 2 of Barrie.

Appellant’s arguments are not commensurate with the scope of the claim. For example, Appellant states that Barrie lacks any teaching of a “system in which fluid flows serially from a heat exchanger and then through a transmission”. The limitation of serial flow is not recited in independent claim 1.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

Art Unit: 3618

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Lesley D. Morris/
Supervisory Patent Examiner, Art Unit 3611

vtc

Conferees:

Vaughn T. Coolman /vtc/

Lesley Morris /LDM/

Paul Dickson /pnd/